

Vit	synonym	Active form	Functions	Causes of Deficiency	Deficiency manifestations
B2	Riboflavin	FMN FAD	hydrogen carriers complex I in ETC (FMN) complex II in ETC (FAD)	prolonged intravenous nutrition	1. Cheilosis 2. Angular stomatitis 3. Glossitis 4. seborrheic dermatitis 5. sun-shine eyes
B3	Niacin Nicotinic acid	NAD ⁺ NADP ⁺	hydrogen carriers Pyruvate dehydrogenase (NAD ⁺) G6PD (NADP ⁺) Note: It can be synthesized from Trp (needs vitamin B6) (not strictly a vitamin)	1. ↓ Intake of Tryptophan & Niacin 2. Vitamin B6 deficiency 3. Carcinoid syndrome (shunting of tryptophan to serotonin synthesis) 4. Hartnup's disease: Genetic defect of transport mechanism for tryptophan → ↓ absorption and reabsorption of tryptophan	(Pellagra) Dermatitis Diarrhea Dementia
B6	Pyridoxine	PLP	1. Transamination (ALT and AST). 2. Decarboxylation (Glutamate → GABA) 3. Homocysteine into Cysteine 4. tryptophan into niacin 5. Synthesis of sphingosine 6. In heme synthesis (ALA synthase) 7. Muscle glycogen phosphorylase	Pregnancy Alcoholics OCP Penicillamine Isoniazid (forms an inactive derivative with PLP and inhibit endogenous synthesis)	1- Hypochromic anemia (↓ heme) 2- Peripheral neuritis (stock and glove) (↓ sphingolipid → demyelination of nerves) 3. Convulsions (↓ GABA). 3- Pellagra (↓ niacin). 4- Homocysteinemia → HTN